1. Which of the following intervals describes the Range of the function below?

$$f(x) = -\log_2(x+7) + 4$$

A. $(-\infty, a), a \in [-1, 6]$

B. $[a, \infty), a \in [-13, -6]$

C. $(-\infty, a), a \in [-4, -1]$

D. $[a, \infty), a \in [7, 14]$

E. $(-\infty, \infty)$

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2. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x+8} - 7$$

A. $(-\infty, a), a \in [3, 11]$

B. $(-\infty, a], a \in [3, 11]$

C. $[a, \infty), a \in [-10, -4]$

D. $(a, \infty), a \in [-10, -4]$

E. $(-\infty, \infty)$

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3. Which of the following intervals describes the Range of the function below?

$$f(x) = \log_2(x+3) - 5$$

A. $(-\infty, a), a \in [4.72, 6.11]$

B. $[a, \infty), a \in [2.54, 3.4]$

C. $[a, \infty), a \in [-3.77, -2.67]$

D. $(-\infty, a), a \in [-6.51, -3.51]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains x (if it exists).

$$8 = \ln \sqrt[5]{\frac{7}{e^{5x}}}$$

A. $x \in [-2.7, -0.2]$

B. $x \in [-3.5, -2.7]$

C. $x \in [6.3, 9.3]$

D. There is no Real solution to the equation.

E. None of the above.

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5. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$5^{3x-4} = \left(\frac{1}{27}\right)^{-2x-2}$$

A. $x \in [0.3, 1.1]$

B. $x \in [0.5, 3.3]$

C. $x \in [-1.7, -1]$

D. $x \in [-8.1, -6.3]$

E. There is no Real solution to the equation.

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6. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{2x-3} = 125^{4x+5}$$

A. $x \in [-0.5, 1]$

B. $x \in [-14.3, -12.9]$

C. $x \in [-2.9, -0.9]$

D. $x \in [-4.4, -2.8]$

E. There is no Real solution to the equation.

7. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x-3} + 3$$

A. $(a, \infty), a \in [-3, 2]$

B. $(-\infty, a], a \in [-1, 6]$

C. $(-\infty, a), a \in [-1, 6]$

D. $[a, \infty), a \in [-3, 2]$

E. $(-\infty, \infty)$

8. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(-3x + 6) + 5 = 2$$

A. $x \in [7.2, 11.8]$

B. $x \in [-2.4, -0.8]$

C. $x \in [4.8, 8.2]$

D. $x \in [1.3, 2.6]$

E. There is no Real solution to the equation.

9. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_5(-4x + 7) + 4 = 3$$

A. $x \in [1.92, 2.48]$

B. $x \in [1.63, 1.76]$

C. $x \in [-29.71, -29.48]$

D. $x \in [-1.56, -1.46]$

E. There is no Real solution to the equation.

10. Solve the equation for x and choose the interval that contains x (if it exists).

$$17 = \sqrt[6]{\frac{17}{e^{4x}}}$$

A. $x \in [3.54, 5.54]$

B. $x \in [-26.21, -23.21]$

C. $x \in [-0.71, 1.29]$

D. There is no Real solution to the equation.

E. None of the above.